

CHAPTER - 4

RESULTS AND DISCUSSION

The responses of the participants were analyzed to verify the hypotheses stated earlier. ANOVA (One Way and Two Way) followed by Scheffe Post Hoc test and Repeated Measure ANOVA were the statistical tools employed to analyze the data. Detailed discussion of the results obtained and analyzed aligned to each of the hypothesis is presented below.

The Yoga or Play Therapy approach introduced here is a combination of various techniques with multimodal approaches to give the child with ADHD the most effective treatment possible. This multimodal approach requires the education of parents regarding ADHD facts and prognoses. The child and the family are helped to take ownership of the disorder and develop coping skills by using Play Therapy and feedback referrals, Yoga and parent counseling. In this respect, the researcher has tried to understand the emotional problems of the ADHD children from different aspects and has designed an appropriate intervention to manage the ADHD's symptoms.

In this study, researcher has used Barkley's (1997) view toward ADHD children. Barkley argues that the critical deficit associated with ADHD is the failure to develop this capacity for "self-control", also referred to as "self-regulation". He suggests that these results are primarily for biological reasons, and not because of parenting. As a result of this core deficit in self-regulation, specific and important

psychological processes and functions subsequently fail to develop in an optimal way. These psychological processes and functions include:

- 1) **Working Memory**, which refers to the ability to recall past events and manipulate them in one's mind so as to be able to make predictions about the future.
- 2) **Internalization of Speech**, which refers to the ability to use internally, generated speech to guide one's behavior and actions.
- 3) **Sense of Time**, which refers to the ability to keep track of the passage of time and to change/alter one's behavior in relation to time.
- 4) **Goal Directed Behavior**, which refers to the ability to establish a goal in one's mind and use the actions internal image of that goal to shape, guide, and direct one's. Conceptualizing ADHD as a disorder of self-regulation, and not a disorder of attention, has significant implications for understanding the difficulties experienced by individuals with ADHD and how to assist them in coping more effectively with those difficulties.

Hypothesis One

There will be no difference in CSI-4 scores among children with ADHD between Pre and Post intervention program of Play Therapy.

Analysis of the subscales of CSI-4 show significant differences among ADHD children after Play Therapy intervention.

Table 4.1 : Mean Pre-Post CSI-4 scores of subjects with different age groups in control and Play Therapy groups

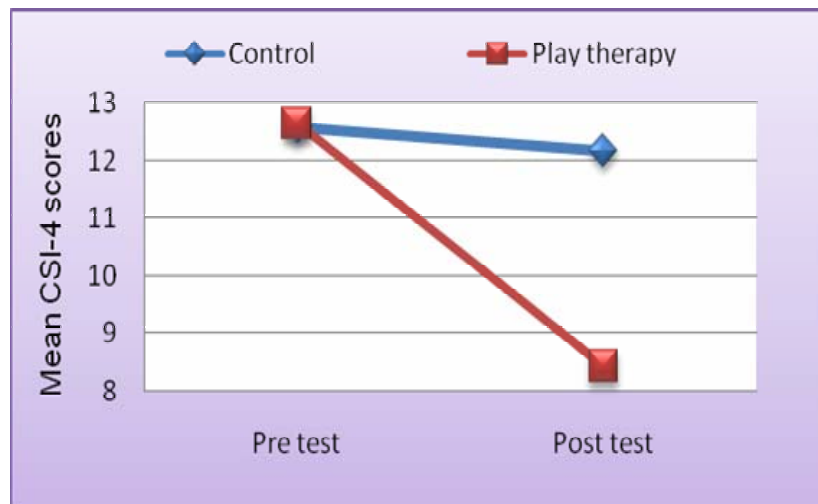
Groups	Age	Test condition				Change (Pre to Post)
		Pre Test		Post test		
		Mean	S.D	Mean	S.D	
Control	9	12.75	1.84	12.50	1.00	0.25
	10	12.91	1.82	12.33	2.42	0.58
	11	12.50	1.50	12.07	1.27	0.43
	12	11.83	1.89	11.66	2.02	0.17
	Total	12.57	1.62	12.17	1.64	0.4
Play Therapy	9	13.54	2.06	11.28	4.02	2.26
	10	13.25	2.41	6.87	3.94	6.38
	11	11.78	1.87	6.88	2.71	4.9
	Total	12.63	2.15	8.42	3.91	4.21
Overall	9	13.54	2.06	11.72	3.22	1.82
	10	13.25	2.41	10.15	4.04	3.1
	11	11.78	1.87	9.15	3.40	2.63
	12	11.83	1.89	11.66	2.02	0.17
	Total	12.63	2.15	10.30	3.52	2.33

Table 4.2 : Results of repeated measure ANOVA for mean Pre and Post CSI-4 scores of subjects with different ages in control and Play Therapy groups

Source of variation	Sum of Squares	df	Mean Square	F Value	P Value
CHANGE	89.48	1	89.48	65.65	.000
CHANGE * GROUP	75.36	1	75.36	55.29	.000
CHANGE * AGE	12.82	3	4.27	3.13	.152
CHANGE * GROUP * AGE	9.23	2	4.61	3.38	.589
Error(CHANGE)	44.97	33	1.36		

A significant decrease ($F=65.658$; $P=.000$) in the mean CSI-4 scores was observed from Pre to Post test situation irrespective of the groups. The overall Pre score was 12.63 (Table 4.1), which had been reduced to 10.30 (change 2.33). When group-wise reduction in the CSI-4 scores was verified, again a significant F value ($F=55.293$; $P=.000$) was observed, indicating that there was a differential decrease for means CSI-4 scores. From the mean values (Table 4.1), it is evident that Play Therapy group had a reduction of 4.21 scores (from 12.63 to 8.42), where as control group had a reduction of 0.4 scores (from 12.57 to 12.17). So, one can definitely say that Play Therapy group had significantly reduced its CSI-4 scores than control group. However, age wise changes were not found to be statistically significant.

Figure 4.1 : Mean Pre-Post CSI-4 scores of subjects in control and Play Therapy groups



ADHD appears to significantly impact a child's emerging personality and cognitive skills. These skill deficits result in negative feedback in various areas of their environment and lack of positive reinforcement as well as an inability to meet the reasonable demands of family, friends, and teachers. As a result, many children

with ADHD feel anxious, unsure of themselves, and depressed. These are not symptoms of ADHD but they come from having these problems over and over again in social situations. Consequently, the child is affected for life (Kaduson, 1997). A treatment intervention must be concerned with both the core symptoms of their disorders and the significant secondary impact they have on the child and associated family member (Kaduson, 1997).

On the basis of the previous researches reported in the literature, Play Therapy has been a successful technique to treat the ADHD children, because it involves the child in the process and it teaches him/her, life management techniques. In this regard, the first goal of using Play Therapy as a treatment program was to build the child's self-esteem. Some researches indicate that children with disorders begin to realize that they are different from other children by the age of five. So, any treatment program needs to focus on the fact that these children need to have their self-esteem enhanced (Goldberg- Arnold & Fristad, 2003).

The second aim of using Play Therapy as a treatment program was to help children develop problem solving skills. Although a child with ADHD may "know" that sharing and cooperating are an important part of making and keeping friends, he/she may fail to apply this knowledge with peers because the immediate rewards associated with getting one's way overpowers the less salient goal of keeping a friendship. Furthermore, the child may know the steps to follow to do a good job on a school project, but not act on this knowledge because of problems with managing time and using a long-term goal to guide behavior.

Play helps ADHD children to build and strengthen the reflective, inhibitory resources that enable empathetic-thinking brains. By using Play Therapy one may have less need for addiction-promoting. Psycho stimulants temporarily enable neo-cortical functions and personality-changing those have not adequately matured under the guidance of brain play systems. There is no questioning the genetically-based temperamental variability that contributes to the diagnosis of ADHD, and the high efficacy of psycho stimulants in reducing impulsive behavior (Faraone, Biederman, & Mick, 2006). But better social-emotional and maturation-promoting tools are available that are currently widely used to address such problems and promote childhood development at home or within school systems. At a societal level, we have yet to institutionalize the power of play to promote desirable mind maturation. With attention of comorbidity ADHD with other psychiatric disorders such as conduct disorder (American Psychiatric Association, 1994; Biederman, Newcorn, & Sprich, 1991), Dogra and Veeraraghavan (1994) found that children diagnosed with aggressive conduct disorder who received non-directive Play Therapy sessions and parental counseling sessions showed significant differences in their behaviors.

In this study, according to the above logic and experiences researcher used Play Therapy as an intervention in order to manage the ADHD symptoms in children. By using Play Therapy intervention, the children became more mature, more positive in their attitudes, and more constructive in the way they expressed their inner feelings.

The results obtained from statistical analysis of the data, demonstrate that Play Therapy based on client-centered therapy also led to a significant positive

change in the symptoms of ADHD children. Play Therapy enables children to rise from their weakness and behaviors associated with ADHD and help them to be aware of their behavior and cope with this disorder better. It is important to find out that what the ADHD children feel and how they express themselves through their play and verbalization. Researcher also reflects these expressed, emotionalized attitudes back to them in such a way to help them understand themselves better. Play Therapy offered the child to experience growth under the most favorable conditions.

Results show a positive effect of Play Therapy on ADHD symptoms and a significant decrease ($F=65.658$; $P=.000$) in the mean CSI-4 scores. Therefore, hypothesis 1, which was stated as **“There will be no difference in CSI-4 scores among children with ADHD between Pre and Post intervention program of Play Therapy”**, is rejected. So, one can say that, when a child is given the opportunity to release his/her emotional problem, and enhance their self-realization, self concept, self confidence, and develop problem solving skills, leads him/her to a better adjustment and conscious behavior. Therefore, they purposefully direct their behavior by evaluation, and selectivity to achieve goals of the therapy.

Hypothesis Two

There will be no difference in CSI-4 scores among children with ADHD between Pre and Post intervention program of Yoga (Asanas, Pranayamas and relaxation).

The results obtained from statistical analysis of the data are demonstrated in Tables 4.3 and 4.4.

Table 4.3 : Mean Pre-Post CSI-4 scores of subjects with different age groups in control and Yoga groups

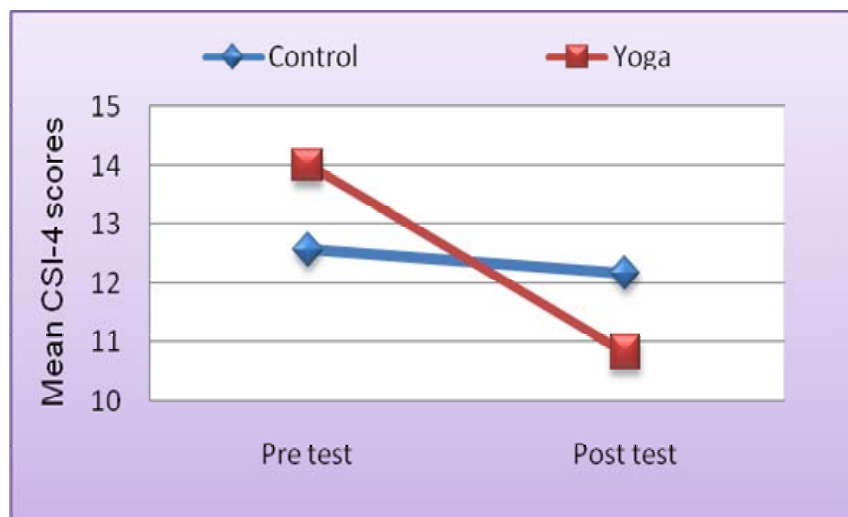
Groups	Age	Test condition				Change (Pre to Post)
		Pre Test		Post test		
		Mean	S.D	Mean	S.D	
Control	9	12.75	1.84	12.50	1.00	0.25
	10	12.91	1.82	12.33	2.42	0.58
	11	12.50	1.50	12.07	1.27	0.43
	12	11.83	1.89	11.66	2.02	0.17
	Total	12.57	1.62	12.17	1.64	0.4
Yoga	9	13.55	2.12	10.05	3.03	3.5
	10	14.33	2.46	11.66	2.80	2.67
	11	14.66	2.84	11.00	2.78	3.66
	12	14.50	-	13.00	-	1.5
	Total	14.00	2.19	10.82	2.83	3.18
Overall	9	13.32	2.01	10.75	2.81	2.57
	10	13.62	2.19	12.00	2.52	1.62
	11	13.15	2.09	11.75	1.75	1.4
	12	12.50	2.04	12.00	1.77	0.5
	Total	13.28	2.03	11.50	2.38	1.78

Table 4.4 : Results of repeated measure ANOVA for mean Pre and Post CSI-4 scores of subjects with different ages in control and Yoga groups.

Source of variation	Sum of Squares	df	Mean Square	F Value	P Value
CHANGE	32.66	1	32.66	47.151	.000
CHANGE * GROUP	19.67	1	19.67	28.402	.000
CHANGE * AGE	1.81	3	0.605	0.873	.465
CHANGE * GROUP * AGE	2.00	3	0.668	0.965	.421
Error(CHANGE)	22.17	32	0.693		

A significant decrease ($F=47.151$; $P=.000$) in the mean CSI-4 scores was observed from Pre to Post test situation irrespective of the groups. The overall mean Pre score was 13.28 (Table 4.3), which had been reduced to 11.50 (change 1.78). When group-wise reduction in the CSI-4 scores was verified, again a significant F value ($F=28.402$; $P=.000$) was observed, indicating that there was a differential decrease for means CSI-4 scores. From the mean values (Table 4.3), it is evident that Yoga group had a reduction of 3.18 scores (from 14.00 to 10.82), whereas control group had a reduction of 0.4 scores (from 12.57 to 12.17). Thus, the Yoga group had significantly reduced its CSI-4 scores than control group. However, age wise changes were not found to be statistically significant ($P>0.05$).

Figure 4.2 : Mean Pre-Post CSI-4 Scores of subjects in control and Yoga groups



Yoga-based program are designed to teach children to strengthen, stretch, and calm the body, quieten the mind, and control the attention and hyperactivity. Based on brain research, both hyperactivity and ADD are correlated with reduced frontal lobe activity. It is also clear that activities are important to enhance frontal

lobe function and overall health can enhance learning potential. Further, research shows that during rest and relaxation periods the brain integrates neurologically and cognitively (Stickgold, Hobson, Fosse & Fosse, 2001). Preliminary findings suggest that Yoga is effective as a complementary and alternative method for addressing ADHD. Jensen and Kenny (2004), summarize that larger studies are needed involving Yoga programs integrated into school curriculum.

A child's Yoga practice is a rare opportunity to do something without ever having to worry about being wrong. Yoga promotes physical strength, encouraging children to use all their muscles in new ways. Yoga helps build energy and stamina, while also calming a child and reducing stress. It is one of the very few non-competitive activities that a child can participate in. When children learn to be non-competitive, they also begin to be less judgmental of both themselves and of others. Many times, children's harsh judgments of others stem from deep-rooted insecurity and a feeling that they are somehow threatened by others' strengths. Acceptance is a large part of Yoga. Children learn that they are fine just the way they are. And when they don't feel the need to constantly compare themselves to others, they become more accepting of everybody else's differences (Meyerson, 2003). Researcher believed that, by using Yoga, children are encouraged to face their disorder and try to learn more about it.

Yoga greatly improves internal health, physical balance, concentration and body awareness. Each Asana is devised in such a way that it not only builds muscular strength, but it also massages and maintains the internal organs. Balance is a key element of Yoga. The balancing poses were created specifically to promote mental and physical balance. Mental clarity and balance emerge from the effort of

practicing the poses. Even if a child never learns to stand on one foot, if they can learn to stay calm when they fall - and to get up and try again - they've learned balance. As children gradually learn to increase their physical balance, they are filled with a sense of accomplishment and self-esteem. Closely tied with balance is the element of coordination. So, children learn how to use their bodies in new ways. Through transaxial movement (across the axis of the spine), their mind is challenged and trained for greater coordination (Meyerson, 2003).

Concentration is a clear benefit of children's Yoga. There is a plethora of documented evidence that Yoga helps children to focus and concentrate in school and get better grades. That is because the Asana practice encourages children to clear their minds and create a single-minded focus on the task at hand (Meyerson, 2003).

Another important point in Yoga for ADHD children is that it promotes their body awareness. Knowledge of the body and its components is integral to the practice. Young children learn about their spines, joints, and muscles. They learn how to manipulate their bodies and maximize their mobility. The flexibility that results from a child's Yoga practice increases his/her range of motion and helps prevent injuries. A child's Yoga practice is imaginative in nature, developing creative thinking skills and encouraging original thought (Meyerson, 2003).

In Yoga, ADHD children learned to take turns, to be nice, and to respect others. It is very important to promote kindness and sharing in all children's classes. Everyone in a Yoga class should consider each other friends and equals, regardless of any labels (positive or negative) that others may give them in school (Meyerson, 2003).

Regarding the above information which highlights the role of Yoga on the ADHD children, directed the researcher to examine the effect of Yoga program on Iranian ADHD children. The results obtained are summarized as following.

As presented in Table 4.4, results show a positive effect of Yoga program on ADHD symptoms of the children selected as samples. A significant decrease ($F=47.151$; $P=.000$) has been observed in the mean CSI-4 scores. Therefore, hypothesis 2, which was stated as **“There will be no difference in CSI-4 scores among children with ADHD between Pre and Post intervention program of Yoga”, is rejected.** So one can say, because of the nature of Yoga treatment, children in treatment group were found to carry out their duties, being more attentive and remain relaxed. The findings are in agreement with those of previous studies. Jensen and Kenny (2004) investigated the clinical effectiveness of Yoga on the ADHD children. The results of the study showed significant improvement from Pre-test to Post-test on Conner’s Parent Rating Scales. The investigators concluded that Yoga is an effective intervention for a broad range of childhood difficulties (Jensen & Kenny, 2004).

The present finding is a strong evidence for the effectiveness of Yoga program on the modification of ADHD symptoms. A significant decrease in the Post test scores relative to the Pre test scores shows a positive effect of Yoga program on children with ADHD. Though, medication does reduce ADHD symptoms to some extent, Yoga program along with medication could be a better option for the therapists.

In this study, though the results are significant, but Yoga treatment shows less effectiveness than Play Therapy on the ADHD symptoms in children. This may be due to the number of sessions and the need of children to have more time to exercise and to become used to it because the Yoga was new and they were unfamiliar with it.

Hypothesis Three

There will be no difference in CSI-4 scores among children with ADHD between Pre and Post intervention program of ‘Play Therapy and Yoga’.

In this regard, the results obtained from statistical analysis of the data are demonstrated in Tables 4.5 and 4.6.

Table 4.5 : Mean Pre-Post CSI-4 Scores of subjects with different age groups in control and ‘Play Therapy and Yoga’ * groups

Groups	Age	Test condition				Change (Pre to Post)
		Pre Test		Post test		
		Mean	S.D	Mean	S.D	
Control	9	12.75	1.84	12.50	1.00	0.25
	10	12.91	1.82	12.33	2.42	0.58
	11	12.50	1.50	12.07	1.27	0.43
	12	11.83	1.89	11.66	2.02	0.17
	Total	12.57	1.62	12.17	1.64	0.4
‘Play Therapy and Yoga’	9	14.40	2.25	7.00	3.10	7.4
	10	13.00	1.80	7.50	1.00	5.50
	11	13.37	1.93	7.62	3.75	5.75
	12	14.16	2.75	10.50	3.96	3.66
	Total	13.95	2.11	7.72	3.16	6.23
Overall	9	13.92	2.21	8.57	3.67	6.2
	10	12.94	1.70	10.72	3.12	2.22
	11	12.81	1.63	10.45	3.19	2.36
	12	13.00	2.46	11.08	2.88	1.92
	Total	13.26	1.98	9.95	3.36	3.31

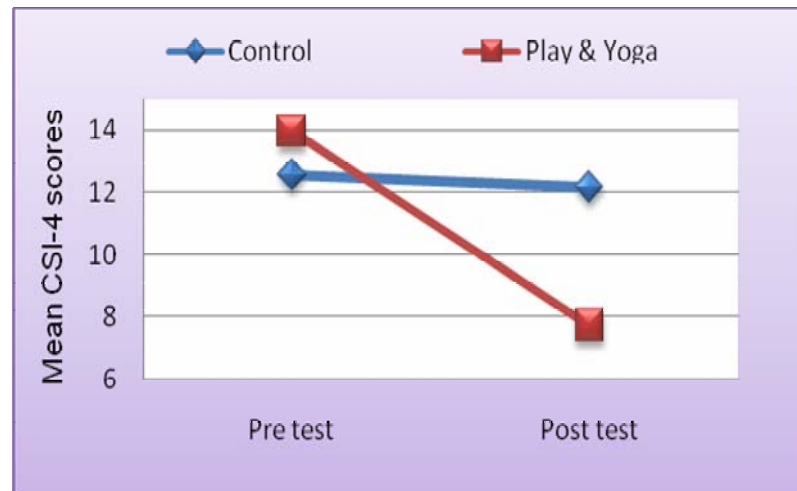
*. ‘Play Therapy and Yoga’= A combination of Play Therapy and Yoga program in alternative sessions.

Table 4.6 : Results of repeated measure ANOVA for mean Pre and Post CSI-4 scores of subjects with different ages in control and ‘Play Therapy and Yoga’ groups

Source of variation	Sum of Squares	df	Mean Square	F value	P Value
CHANGE	147.638	1	147.638	71.498	.000
CHANGE * GROUP	114.246	1	114.246	55.327	.000
CHANGE * AGE	7.213	3	2.404	1.164	.339
CHANGE * GROUP * AGE	7.270	2	2.423	1.174	.335
Error(CHANGE)	66.078	32	2.065		

A significant decrease ($F=71.498$; $P=.000$) in the mean CSI-4 scores was observed from Pre to Post test situation irrespective of the groups. The overall Pre score was 13.26 (Table 4.5), which had been reduced to 9.95 (change 3.31). When group-wise reduction in the CSI-4 scores was verified, again a significant F value ($F=55.327$; $P=.000$) was observed, indicating that there was a differential decrease for means CSI-4 scores. From the mean values (Table 4.5), it is evident that ‘Play Therapy and Yoga’ group had a reduction of 6.23 scores (from 13.95 to 7.72), whereas control group had a reduction of 0.4 scores (from 12.57 to 12.17). So, one can definitely say that ‘Play Therapy and Yoga’ group had significantly reduced its CSI-4 scores than control group. However, age wise changes were not found to be statistically significant.

Figure 4.3 : Mean Pre-Post CSI-4 scores of subjects in control and 'Play Therapy and Yoga' groups



The review of literature showed no study related to combined intervention of Play Therapy with Yoga on ADHD children. Consequently, relative information through separate studies on efficacy of Play Therapy or Yoga on ADHD children has been collected. Ray, Bratton, Rhine and Jones (2001) completed a meta-analysis of 94 research studies investigating the clinical effectiveness of Play Therapy. The results of the meta-analysis conducted by Ray et al. (2001) revealed a large effect size ($d=.80$) and concluded that Play Therapy is an effective intervention for a broad range of children's difficulties. Dogra and Veeraraghavan (1994) found that children diagnosed with aggressive conduct disorder who received 16 sessions of non-directive Play Therapy sessions and parental counseling sessions showed significant differences in their behaviors. The above reported results are in agreement to the previously mentioned statement that Play Therapy based on client-centered therapy causes a significant positive change in the symptoms of ADHD children.

Jensen and Kenny (2004); Denkowski, Denkowski and Omizo (1983) studied the effects of Yoga on the attention and behavior of children with Attention-

Deficit /Hyperactivity Disorder (ADHD). They investigated the effect of reduced muscular tension brought about by relaxation training on hyperactive children and found a modest improvement in self-control (necessary to improve attention) and significant improvement in scholastic performance. In Zipkin's (1985) review of the benefits of Yoga and relaxation training, inattentiveness, hyperactivity, and impulsiveness have been reported to be reduced with consequent improvement in the ability to relax and focus more on learning. Due to discipline and harmonic movement along with slow music, children were helped to control their movement and be aware of their body

Knowing the above information, Play Therapy was used for ADHD samples and in the mean time, they were treated with Yoga in order to promote control, reduce stress and depression, improve attention and control hyperactivity in them.

As illustrated in Table 4.6, results show a positive effect of 'Play Therapy and Yoga' on ADHD symptoms and a significant decrease ($F=71.498$; $P=.000$) in the mean CSI-4 scores. Therefore, hypothesis 3, which was stated as **"There will be no difference in CSI-4 scores between the relative effectiveness of 'Play Therapy and Yoga' on children with ADHD"**, is rejected. It can be explained that using two different interventions which could cover different aspect of weakness in ADHD children was effective enough to reduced ADHD symptoms.

The results show that 'Play Therapy and Yoga' has a significant positive change in children with ADHD symptoms. When the ADHD children's mind is toward their disorder, then their attention span towards environment will reduce.

When they express and release their feelings through Play Therapy and build their self esteem, they can help themselves to manage symptoms of their disorder. The observed results demonstrate that Play Therapy enables an individual to rise from negative feelings and thinking and help them to be aware of their behavior and cope with their disorder better. These could happen by giving them an appropriate feedback when necessary during their Play Therapy and give them an opportunity to cope with their problems. In addition, they should feel that their feelings are accepted truly.

Hypothesis Four

There will be no significant difference in the effect of the three different intervention programs as measured by CSI-4.

For this purpose, the statistical analysis of the data obtained has been tabulated in Tables 4.7 and 4.8.

Table 4.7 : Mean reduction in (Pre-Post) CSI-4 scores of subjects in control, Play Therapy Group, Yoga group, and ‘Play Therapy and Yoga’ groups.

Groups	Mean	S.D
Control	0.400	1.262
Play Therapy	4.275	2.342
Yoga	3.175	1.042
‘ Play Therapy and Yoga’	6.225	2.697

F= 30.634; P=.000

When the analysis was performed for change in the mean CSI-4 scores (Pre to Post), a significant difference (F=30.634; P=.000) was observed between different groups. From table 4.7 it is clear that Play Therapy group had a reduction of 4.275

scores, Yoga group had a reduction of 3.175 scores, ‘Play Therapy and Yoga’ group had a reduction of 6.225 scores, and lastly control group had a reduction of 0.40 scores. Further, Scheffe’s Post hoc test revealed that ‘Play Therapy and Yoga’ group had significantly highest mean CSI-4 scores reduction; Play Therapy group and Yoga program group had lesser reduction and control group least. However, no significant difference was observed between Play Therapy group and Yoga program groups.

Figure 4.4 : Mean reduction in the CSI-4 scores for different groups

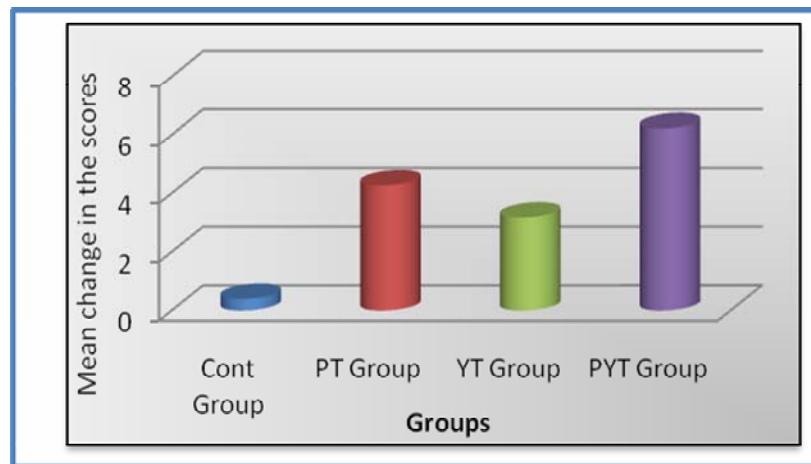


Table 4.8 : Results of Scheffe’s post hoc test (multiple comparisons)

GROUPS	Subset for alpha = .05		
	1	2	3
Control	0.4000		
Yoga		3.175	
Play Therapy		4.275	
‘Play Therapy and Yoga’			6.225

ADHD is known as behavioral and emotional problem; therefore, it requires two different types of therapy. That is why behavioral and psychoanalytic approaches have been chosen to make more effective interventional treatments. Unfortunately, as mentioned before, there is no study that has evaluated the effectiveness of the combination of 'Play Therapy and Yoga' in treatment of children with ADHD. However, different studies show that ADHD children suffer from different type of emotional problems (Venter, Benn & Aucamp, 2003). As a consequence of failures caused by disturbed attention, impulsive reactions and behavior and rejection by classmates or even their teachers, negative self-esteem with self-destructive beliefs and feelings of despair is very common among children with ADHD. These children have problems to integrate in groups and are very prone to be excluded from common social activities and lose attitude of effort to cope with their problem. Even if a successful medication with psycho-stimulants improves the cognitive possibilities of the child, but the low self-esteem might remain for a much longer period. Often secondary depression or social phobia can interfere with a successful change (Winkler, 2006).

In this study, results show a positive effect among all three interventions, but combined group 'Play Therapy and Yoga' had highest reduction of 6.225 score in the mean CSI-4 scores on ADHD symptoms. Therefore, hypothesis 4, which was stated as "There will be no significant difference in the effect of the three different intervention programs as measured by CSI-4", is rejected. This can be explained that in 'Play Therapy and Yoga' group, advantage of both treatments was obtained. Therefore, the group's scores were significantly different from the control group. Also, it could be argued that emotional dimension of ADHD disorder is a barrier for

other treatment to be successful. When this barrier is removed, children are ready to get responsibility for a more effective change. On the other hand, it can be said that only Play Therapy is not sufficient and it should be combined with other treatments to be more effective.

Hypothesis Five

There will be no difference in CSI-4 scores (inattention subscale) between the relative effectiveness of different therapies on children with ADHD.

In Tables 4.9 and 4.10, the results obtained from statistical analysis of the data are illustrated.

Table 4.9 : Mean Pre and Post CSI scores for inattention subscale of different groups

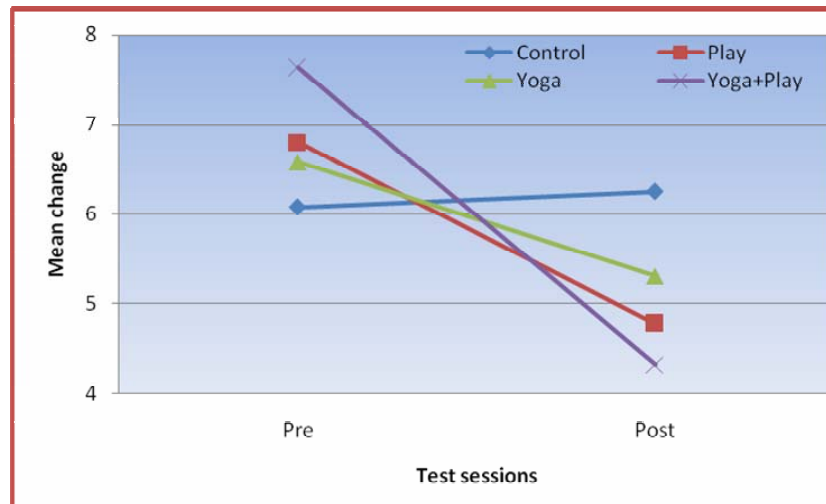
Groups	Pre test		Post test		Change
	Mean	S.D	Mean	S.D	
Control	6.0750	1.0422	6.2500	0.9665	0.17
Play Therapy	6.8000	1.4455	4.7750	2.1243	2.02
Yoga	6.5750	1.4804	5.3000	1.3416	1.28
‘Play Therapy and Yoga’	7.6250	1.1107	4.3250	1.7568	3.30
Total	6.7688	1.3801	5.1625	1.7335	1.61

Table 4.10 : Results of repeated measure ANOVA for mean Pre and Post CSI scores for attention subscale of different groups

Within Subject Effects					
Source	Sum of Squares	df	Mean Square	F	P
CHANGE	103.202	1	103.202	145.499	.000
CHANGE * EXP_GROUP	63.267	3	21.089	29.733	.000
Error(CHANGE)	53.906	76	.709		
Tests of Between-Subjects Effects					
Source	Sum of Squares	df	Mean Square	F	P
Intercept	5694.189	1	5694.189	1615.787	.000
EXP_GROUP	2.855	3	0.952	0.270	.847
Error	267.831	76	3.524		

A significant decrease ($F=145.499$; $P=.000$) in the mean CSI-4 scores was observed from Pre to Post test situation irrespective of the groups for the attention subscale. The overall mean Pre score was 6.7688 (Table 4.9), which had been reduced to 5.1625. When group-wise reduction in the CSI-4 scores was verified, again a significant F value ($F=29.733$; $P=.000$) was observed, indicating that there was a differential decrease for means CSI-4 scores. From the mean values (Table 4.9), it is evident that 'Play Therapy and Yoga' group had a reduction of 3.30 scores (from 7.625 to 4.325), this is followed by Play Therapy group which had a reduction of 2.02 scores (6.80 to 4.775), Yoga group had a reduction of 1.28 scores (6.575 to 5.30) and lastly control group had an increase of 0.17 scores (from 6.075 to 6.25). Thus, the 'Play Therapy and Yoga' group had significantly reduced its CSI-4 scores than all other groups.

Figure 4.5 : Mean Pre and Post CSI scores for inattention subscale of different groups



As a result of non-understanding problem of ADHD children, many of them feel anxious, depressed and unsure of themselves. Stress can limit frontal lobe development and reduce cognitive functioning and effectiveness (Fasig, 2006), but Yoga and Play Therapy lowers stress, generates positive emotional state and interpersonal rapport, even in behaviorally challenged children. When the body is under stress and/or fear, the person may begin to operate from the brain stem and become hyperactive and/or their attention span and concentration will decrease (Fasig, 2006). Yoga carries out the sadness, stress and anger; Yoga gives children time out and helps them to concentrate better. In the same way Play Therapy helps child to release their emotional feelings and enhance their self confidence.

Results show that these different intervention programs have significant effect on subscale of inattention symptoms in ADHD children. In this respect, 'Play Therapy and Yoga' group had the most effect on the ADHD children. The next most effective intervention was Play Therapy and the Yoga program alone showed the

lowest effectiveness. Therefore, hypothesis 5, which was stated as “**There will be no difference in CSI-4 (inattention subscale) scores between the relative effectiveness of different therapies on children with ADHD**”, is rejected. In this part, the results have been the same as the observations in hypothesis 4. In other words, the applied interventions have the same effect on the inattention subscale as the ADHD symptoms.

Hypothesis Six

There will be no difference in CSI-4 scores (**hyperactivity subscale**) between the relative effectiveness of different therapies on children with ADHD.

In order to evaluate the hypothesis, the analytical analysis has been performed on the data obtained and tabulated in Tables 4.11 and 4.12.

Table 4.11 : Mean Pre and Post CSI scores for hyperactivity subscale of different groups

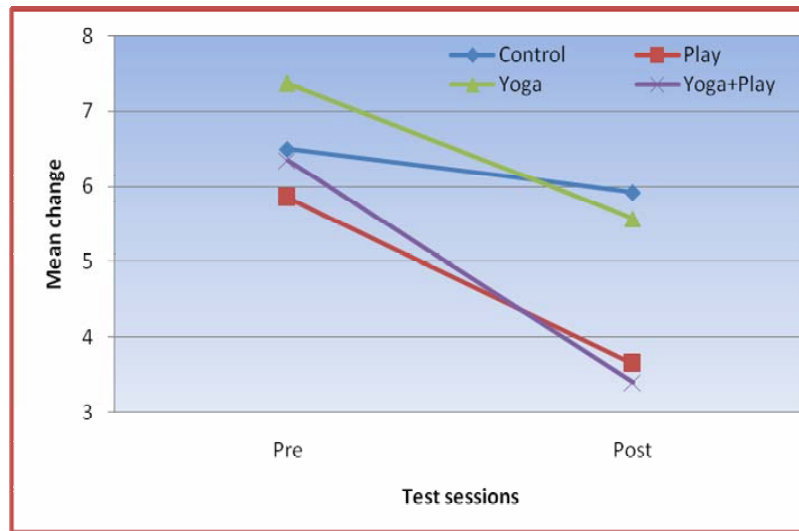
Groups	Pre test		Post test		Change
	Mean	S.D	Mean	S.D	
Control	6.5000	1.5218	5.9250	1.7865	0.58
Play Therapy	5.8500	2.1405	3.6500	2.4067	2.20
Yoga	7.3750	1.3266	5.5750	1.8301	1.80
‘Play Therapy and Yoga’	6.3500	1.5226	3.4000	1.8750	2.95
Total	6.5188	1.7163	4.6375	2.2558	1.88

Table 4.12 : Results of repeated measure ANOVA for mean Pre and Post CSI scores for hyperactivity subscale of different groups

Within Subject Effects					
Source	Sum of Squares	df	Mean Square	F	P
CHANGE	141.564	1	141.564	118.563	.000
CHANGE EXP_GROU	29.567	3	9.856	8.254	.000
Error(CHANGE)	90.744	76	1.194		
Between-Subjects Effects					
Source	Sum of Squares	df	Mean Square	F	P
Intercept	4978.477	1	4978.477	903.192	.000
CHANG EXP_GROU	95.480	3	31.827	5.774	.001
Error	418.919	76	5.512		

In the case of hyperactivity subscale again a significant decrease ($F=118.563$; $P=.000$) in the mean CSI-4 scores was observed from Pre to Post test situation irrespective of the groups. The overall mean Pre score was 6.5188 (Table 4.11), which had been reduced to 4.6375. When group-wise reduction in the CSI-4 scores was verified, again a significant F value ($F=8.254$ $P=.000$) was observed, indicating that there was a differential decrease for means CSI-4 scores. From the mean values (Table 4.11), it is evident that 'Play Therapy and Yoga' group had a reduction of 2.95 scores (from 6.35 to 3.4), this is followed by Play Therapy group which had a reduction of 2.20 scores (5.85 to 3.65), Yoga group had a reduction of 1.80 scores (7.375 to 5.575) and lastly control group had a reduction of only 0.58 scores (from 6.50 to 5.925). Thus, the 'Play Therapy and Yoga' group had significantly reduced its CSI-4 scores than all other groups.

Figure 4.6 : Mean Pre and Post CSI scores for hyperactivity subscale of different groups



Barkley (1997) argues that, “the fundamental deficit in individuals with ADHD is one of self-control, and that problems with attention are a secondary characteristic of the disorder”. He emphasizes that during the course of development, control over a child's behavior gradually shifts from external sources to being increasingly governed by internal rules and standards. Controlling one's behavior by internal rules and standards is what is meant by the term "self-control". ADHD children have very little ability to refrain from acting on an impulse to inhibit their behavior. Instead, it is more typical for them to "act out" the things that pop into his/her mind. There are few opportunities in most educational curricula to train children in the skills required for self-control and focusing the mind. Control of the body and mind involves skills that one can learn with instruction and practice. On the other hand a growing body of research shows the positive effect of Yoga on children with ADD/HD and oppositional behaviors.

In this respect, it has been tried to identify the most effective program on hyperactivity subscale of ADHD symptoms, apart from inattention subscale. Results show that these different intervention programs have significant effect on subscale of hyperactivity symptoms in ADHD children. In this regard, ‘Play Therapy and Yoga’ has been the most effective treatment, and Play Therapy was the next, and lastly Yoga program had the least effect on ADHD symptoms. Therefore, hypothesis 6, which was stated as **“There will be no difference in CSI-4 (hyperactivity subscale) scores between the relative effectiveness of different therapies on children with ADHD”**, is rejected. It can be said that applied Play Therapy or Yoga interventions has the same effect on the hyperactivity subscale as the ADHD symptoms.

Hypothesis Seven

There will be no difference in CSI-4 between inattention and hyperactivity subscales on the relative effectiveness of different therapies on children with ADHD.

Tables 4.13 and 4.14 represent the results obtained from statistical analysis of the data in order to evaluate the hypothesis.

Table 4.13 : Mean reduction in the scores of Attention and hyperactivity subscale from Pre to Post test sessions for different groups

GPS	Subscale	Mean	Std. Deviation
Control	Inattention	-0.1750	0.6935
	Hyperactivity	0.5750	1.0794
	Total	0.2000	0.9727
Play Therapy	Inattention	2.0250	1.5345
	Hyperactivity	2.2000	1.9222
	Total	2.1125	1.7190
Yoga	Inattention	1.2750	0.8347
	Hyperactivity	1.8000	1.1402
	Total	1.5375	1.0215
'Play Therapy and Yoga'	Inattention	3.3000	1.4636
	Hyperactivity	2.9500	1.8418
	Total	3.1250	1.6515
Total	Inattention	1.6063	1.7223
	Hyperactivity	1.8813	1.7452
	Total	1.7438	1.7339

Table 4.14 : Results of 2-way ANOVA for mean change in the scores of inattention and hyperactivity subscale from Pre to Post test sessions for different groups

Source	Sum of Squares	df	Mean Square	F	P
GPS	178.781	3	59.594	31.311	.000
CHAR	3.025	1	3.025	1.589	.209
GPS * CHAR	6.888	3	2.296	1.206	.310
Error	289.300	152	1.903		
Total	964.500	160			
Corrected Total	477.994	159			

Between different groups a significant difference was observed in the mean change scores from Pre to Post test sessions ($F=31.311$; $P=.000$), where 'Play Therapy and Yoga' group had maximum reduction, followed by Play Therapy, Yoga and control group least. However, when subscales were analyzed for reduction in the scores, a non-significant difference ($F=1.589$; $P=.209$), we find both subscales had similar reduction (1.6063 and 1.8813 for attention and hyperactivity respectively). Lastly, the interaction between groups and subscales was also found to be non-significant ($F=1.206$; $P=.310$).

In this part, it has been investigated to find out, which intervention program, Yoga, Play Therapy or the combination of both is more effective in the improvement of attention span or hyperactivity management in ADHD children. But results show that these different intervention programs have no significant difference effect on inattention and hyperactivity symptoms of ADHD children, specifically. Therefore, hypothesis 7, which was stated as **“There will be no difference in CSI-4 between inattention and hyperactivity subscales on the relative effectiveness of different therapies on children with ADHD”**, is accepted. In conclusion, it can be explained that these intervention programs have effect on both (inattentive and hyperactivity symptoms) equally. Furthermore, the two dimensions (inattention and hyperactivity) of ADHD have direct effect on each other. And, although this study presents an evidence of the positive effectiveness of the interventions selected for the treatment of ADHD children, no significant difference has been observed for the positive changes of the subscales.

Hypothesis Eight

Age does not influence the relative effectiveness of Yoga and Play Therapy in the ADHD symptoms.

To evaluate this hypothesis, the statistical methods used were mean calculation and Two Way ANOVA. The results are demonstrated and discussed in the Tables 4.15 and 4.16:

Table 4.15 : Mean reduction in Pre-Post CSI-4 scores of subjects in control, Play Therapy Group, Yoga group, and ‘Play Therapy and Yoga’ groups with respect to different ages.

GROUP	AGE	Mean	Std. Deviation
Control Group	9	0.25	1.443
	10	0.58	1.715
	11	0.43	1.205
	12	0.17	0.288
	Total	0.40	1.262
Play Therapy	9	2.714	2.138
	10	6.875	1.108
	11	4.333	1.903
	Total	4.275	2.342
Yoga	9	3.500	1.201
	10	2.666	0.516
	11	3.666	0.288
	12	1.500	-
	Total	3.175	1.042
‘Play Therapy and Yoga’	9	7.400	2.131
	10	5.500	0.866
	11	5.750	4.291
	12	3.666	1.527
	Total	6.225	2.697
Total	9	4.161	3.014
	10	3.34	2.723
	11	3.304	2.898
	12	1.857	1.973
	Total	3.518	2.864

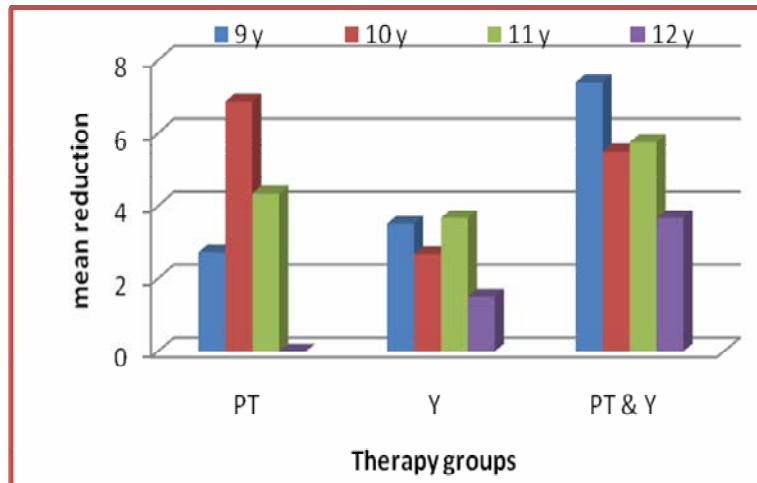
Table 4.16 : Results of 2-Way ANOVA for mean Pre and Post CSI-4 scores of subjects with different ages.

Source of Variation	Sum of Squares	df	Mean Square	F Value	P Value
GROUP	256.587	3	85.529	26.887	.000
AGE	13.118	3	4.373	1.375	.258
GROUP*AGE	68.922	8	8.615	2.708	.012
Error	206.772	65	3.181		
Total	1638.750	80			
Corrected Total	648.222	79			

When reduction in the mean CSI-4 scores was compared across different ages, no differential reduction was observed across different ages as the obtained F value of 1.375 was found to be non-significant. However, the interaction between groups and age was found to be significant ($F=2.708$; $P<.012$), where, in Play Therapy group subjects in 10 years group had maximum reduction, but in ‘Play Therapy and Yoga’ group, subjects in 9 years age group had maximum reduction.

Therefore, hypothesis 8, which was stated as, “**Age does not influence the relative effectiveness of Yoga and Play Therapy in the ADHD symptoms**”, in the Yoga group, age has not influenced the ADHD symptoms, while it has influenced the Play Therapy group and combined group. Hence, the hypothesis 8, is accepted for Yoga group and rejected for ‘Play and Yoga’ group.

Figure 4.7 : Age-wise mean change in the CSI-4 scores for different therapy groups



As it is observed in Figure 4.7, in the Play Therapy group, the 10 year olds ADHD children have benefited most and the 12 year olds have benefited the least. In the Yoga treatment, 9 and 11 year olds ADHD children have improved the most, and the 12 year olds, the least. ADHD children of the age of 9 had the most advantage, and again, the 12 year olds children had the minimum advantage in the treatment of both the ‘Play Therapy and Yoga’. From the above results, it can be concluded that in all three methods of treatment, the 12 year olds ADHD children have improved less than the other age group studied, although, this conclusion can not be generalized. Furthermore, it can not be stated that a specific age is suitable for the effectiveness of the treatments. It seems that other researchers have arrived at the same result, due to that, no report has been found in this regard and they have found it ignorable.

4.1. Major Findings

The results obtained from this study demonstrated that:

- Play Therapy based on client-centered therapy led to a significant positive change in children with ADHD.
- Yoga (based on Yogacharya Avneesh Tiwari's guidance) led to a significant positive change in children with ADHD.
- The combined group 'Play Therapy and Yoga' had positive effect on children with ADHD.
- Combined group of 'Play Therapy and Yoga' had the most effect among the three methods of treatment for ADHD children.
- The effectiveness of Play Therapy or Yoga program was the same in ADHD symptoms and its inattention subscale.
- The effectiveness of Play Therapy or Yoga program was the same in ADHD symptoms and its hyperactivity subscale.
- Play Therapy, Yoga or a combination of both intervention programs had the same effect on inattentive and hyperactive symptoms.
- In all three methods of treatment mentioned in this study, the 12 year olds ADHD children had improved less than the other age groups, although, it can not be stated that a specific age is suitable for the effectiveness of the treatments.

4.2. Limitations

The qualitative analysis of this research has been presented in the current chapter. Some of the limitations of this study which can exist in researches under the similar theme have been presented below:

1. The presented samples in this study were limited to the ADHD children population of Shiraz city, though the samples were from diverse demographic backgrounds. It was important to include children from other cities in Iran to generalize the findings to the entire Iranian children population.
2. Most of the parents of ADHD children from high economic levels refused to participate in the present research. Thereby, generalization of the results to all the classes of society was not allowed.
3. Parents and teachers might have interpreted the items of the CSI-4 test different from what the researcher intended. In addition, parents of the children with ADHD may have provided biased reports of their children's behavior, possibly resulting in more positive appraisals of their children.
4. Difference in the timing of the treatments among the intervention groups, may have led to an uncontrolled effect which was unavoidable due to limited resources and time.

4.3. Implications for Remedial Measures

Based on the review of literature and present research findings, the researcher proposes the following implications for the management of behavioral and emotional problems, and enhancement of the mental health of ADHD children.

An analysis of the findings of the present study reveals that there is substantial evidence for proving the efficacy of the Play Therapy and Yoga interventions in enhancing the attention and behavioral management in ADHD children. Secondly, there is a substantial amount of data, to show the extent to which different variables of ADHD symptoms correlated with different aspects of Play Therapy and Yoga treatment. Finally, the findings have also facilitated a theoretical conceptualization of ADHD treatment in various dimensions. The detailed implications of the findings of the present study are discussed below:

1. The theoretical and empirical reviews made in chapter two, adequately justify the need for the present study. These reviews briefly highlight the various theoretical and empirical underpinnings of the Play Therapy and Yoga research on ADHD symptoms of the past few decades. They reveal that Play Therapy and Yoga have been widely researched in western culture and India. The findings of the present study have provided adequate scientific basis for the efficacy of Play Therapy and Yoga techniques in our Iran cultural scenario.
2. Though the components of ADHD like low self confidence and self concept , impulsivity, inattention, hyperactivity, lack of communication skills and social skills etc. were studied in the past, a complete holistic approach was not implemented and studied. The theoretical and empirical outcome of the present study has provided adequate information in understanding this issue. Therefore, it is hoped that this study may help the therapists and researchers in exploring the conceptual realms of ADHD and its constructs.
3. The teacher and parents never assumed that ADHD children required any special help in the various aspects of their lives, but when their child had learning disability and academic low performance they always cared for that. The present

study has tried to reveal that ADHD children require adequate help especially in the psychosocial areas, to understand them better and to find out to what extent Play Therapy and Yoga can help them to live better lives. This study gives enough evidence of these factors, which help the researchers, therapists, educationalists and social workers to understand ADHD children and to deal and help them effectively.

4. One of the major objectives of the present research is to examine the effectiveness of Yoga programs in enhancing the attention span of ADHD children. A complete understanding of this relationship will provide a strong theoretical basis for the understanding of the ADHD children. This knowledge will be of great help for future researchers, therapists, counselors, and educationalists.
5. Thus, the findings of the present study provide empirical evidence to those interested in adopting or experimenting with Play Therapy and Yoga techniques.
6. Finally, the unique feature of this present study is that it has broadly included various variables to explore different facets of ADHD children in the Iran cultural scenario under the controlled procedures of Play Therapy and Yoga programs.
7. Therefore, the findings of the present research will activate the attention of the educational counselors, researchers, teachers, and parents of the future.

4.3. Suggestions

1. While a variety of researches suggest that behavioral, medication, Play Therapy, Yoga programs and their combinations are most likely to produce positive changes in children with ADHD as a whole, there are large individual

differences between children with the same disorder. Therefore it is important to try other types of Play Therapy or Yoga styles.

2. Effective treatments for ADHD are available, but efficacy does not extend beyond the course of treatment. Therefore, treatments must cover a long period.
3. Regular long-term follow up is necessary to maintain motivation and to monitor treatment efficacy.
4. Conducting sessions out of school hours presented many logistic problems that could have been overcome if sessions were conducted during school hours.
5. Engage ADHD children more in natural self-generated social plays. One reason for the increasing incidence of ADHD may be the diminishing availability of opportunities for Pre-school children to engage in natural self-generated social plays. Psycho-stimulants promote outward attentiveness but rarely facilitate long-term learning and retention.
6. As an alternative to the use of play-reducing psycho-stimulants, society could establish Yoga program “sanctuaries” for at-risk children in order to facilitate frontal lobe maturation and the healthy development of pro-social minds. The dynamic brain changes promoted by Yoga will probably facilitate brain growth and maturation.
7. Recognition of ADHD children and knowing its characteristics is the first step in managing them, so it seems important to present theoretical classes for parents and teachers in order to raise their knowledge about ADHD.